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B OTULISM is a paralysing disease caused by botulinum toxin which is produced by the bacterium *Clostridium botulinum*.

*Clostridium botulinum* spores are common in the soil, and also in the gut of healthy cattle and other animals in tropical environments (which includes most of Queensland), where they are not a problem.

Spores are the dormant form of the organism.

Only actively growing *Clostridium botulinum* bacteria produces botulinum toxin, which causes the disease. *Clostridium botulinum* spores only germinate and grow where oxygen is totally excluded, for example within rotting animal and vegetable matter.

The toxin binds strongly to nerve endings, preventing nerve impulses to muscles and causing paralysis.

Seven types of toxin have been identified, designated A to G. In Australia most botulism outbreaks in cattle and sheep are due to type C or D toxin. The toxin is quite stable and may remain in contaminated feed or water for some time. Vaccination is the only effective way to prevent outbreaks.

Botulism is commonly seen in Queensland, especially in phosphorus-deficient areas and during droughts where it is often associated with cattle eating bones and carrion to satisfy a craving for phosphorus and/or protein.

Outbreaks are also seen in intensively fed beef and dairy cattle mostly due to feedstuffs contaminated with dead animals such as snakes, birds, possums

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and mice. Large outbreaks have occurred in dairy cows being fed total mixed rations based on silage. In some cases, producers have lost two-thirds of their dairy herd over a two-week period.

Other outbreaks have involved dairy herds where poultry litter has been used to fertilise pastures. Cattle have eaten litter piled ready to be spread on pastures or litter that has been spread on pasture but not incorporated into the soil.

Legislation now prohibits feeding animal matter, including chicken faeces and chicken litter to livestock, and livestock must be denied access to this material.

Animals are only allowed to graze pasture fertilised with chicken faeces or litter if it is ploughed into the soil or given time to be incorporated into the soil first.

Symptoms vary dramatically depending on the dose of toxin and any pre-existing immunity that may be present. Symptoms vary from sudden death (animals collapse and die in several hours) to a slowly progressive paralysis where death may take days. In the latter case, the first signs are cattle off their feed and water.

Then they develop a wobbly gait (staggers) and eventually go down. During the staggers stage, some cattle become aggressive because they feel helpless.

Not all cattle that develop botulism symptoms will die. Some mildly affected cattle will recover. Generally speaking, once cattle go down, their likelihood of recovery is poor.

Cattle affected by botulism do not develop a fever.



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Cattle may progress to the stage where they have difficulty breathing and typically lie on their brisket with their hind legs stretched out

#### behind them.

Tongue paralysis may or may not develop (cattle cannot pull their tongue back in when it is pulled out of their mouth). At post-mortem, there are no obvious signs other than those associated with being down.

The only effective longterm prevention strategy for botulism is vaccination with bivalent botulinum vaccines.

In phosphorus-deficient areas where botulism risk is very high, vaccination against types C and D botulism has been widely adopted as standard industry practice.

Beef and dairy producers who feed their cattle a prepared ration, especially those based on silage or by-products such as brewer's grains, should vaccinate their cattle against botulism. A range of different botulism vaccines on the market are highly effective. Some newer vaccines only require a single shot where the traditional vaccine requires two shots a month apart.

The one-shot and twoshot vaccines get a similar result, and the decision on which type to use depends largely on cost and convenience.

All vaccines require boosters to be given to maintain immunity. Consult package information or the vaccine manufacturer for advice on the timing of booster vaccinations.

Other prevention strategies include:

- Phosphorus and/or protein supplementation to assist in reducing bone chewing.
- If possible prevent stock having access to rotting
- animal and vegetablematter, including in water.Ensuring feedstuffs are
- not contaminated with botulinum toxin. Vermin control during harvest, preparation
- and storage of animal feedstuffs.
- Prevent stock from having access to piles of chicken litter (there is a chicken litter feeding ban in Queensland).
- Incorporating chicken litter into the soil immediately after being spread.

For more information visit www.business.qld.gov. au/industries/farms-fishing-forestry/agriculture/ livestock/animal-welfare/ pests-diseases-disorders/ botulism

Contact beef extension officer Megan Gurnett, Toowoomba at Megan. Gurnett@daf.qld.gov.au





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Shopping for a

high-performing sire?

THERE'S no doubt that a high-performing bull must be structurally sound and reproductively fit, but what you can't see about that bull is just as important.

Looking 'under his hood' helps you build up a fuller picture of all the traits that a bull can pass on to his progeny; traits like fertility, carcase weight and eating quality.

When it's time to pick your next high-performing bull, use this handy list.

# **BEFORE THE SALE**

- 1. Identify or reassess your breeding objective.
- 2. Identify the relevant indexes and breeding values that align with your breeding objective.
- 3. Search sale catalogues and online BREEDPLAN databases to find sires that match your desired indexes and breeding values.
- 4. Contact the stud to gain more information about their bulls and breeding program.
- 5. Develop a primary and secondary list of potential bulls to purchase.
- 6. Decide on your budget.

**DURING THE SALE** 

7. Visually appraise your

8. Evaluate the remaining

bulls on your list and

9. Bid on bulls on your

make a purchasing plan.

shortlisted sires.

shortlist that meet your physical assessments and your budget.

### AFTER THE SALE

- 10. Treat your bull according to your own biosecurity
- management plan. 11. Record the bull's tag number and appropriate animal movement
- records. 12.Allow six to eight weeks for your new bull to

de-stress before joining. Check him frequently. 13.Feed a high-protein diet prior to joining to ensure he is in body condition score 3.5 at time of joining.

There's no doubt that a high-performing bull must be structurally sound and reproductively fit. But what you can't see about that bull is just as important.

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14.Once joining

- commences, confirm your sire is working by observing him service in the paddock.
- 15.Conduct annual animal health treatments and a BULLCHECK on your entire bull herd prior to joining annually.
- MLA's new genetics hub contains resources, including a step-by-step video on shopping for a high-performing bull.
- Visit genetics.mla.com. au/tropical/bull-shopping.
- Get the correct lick troughs for your herd

LICK troughs do not need to an animal falls in. be elaborate.

Drums cut with slits, old tractor tyres with the side wall cut out or hollow logs that let the water drain away are options that might be on cess, having enough supplehand for feeding loose licks.

Molasses troughs should have grip even if it's just weld mesh on the bottom in case

You may wonder what the optimal stock-to-trough ratios for supplements is. The size needs to be a combination of providing enough acment on offer and avoiding having to refill up too often.

When feeding weaners protein meal or pellets, aim

APPLICATOR

for about 20cm of space per head.

Dry lick and phosphorus supplements don't require the same space allowance because the low intakes mean animals don't need to spend as much time at the trough.

Molasses mixes require enough trough space to

bullying several troughs spread apart are better than one long trough.

A rough guide is a maximum of 50 head to a 350-450 litre trough or a maximum of 80 head to a 500-750 litre trough.

Ideally troughs should be placed at least 100-150 me-

avoid bullying. To reduce tres from watering points, as placing lick troughs close to waters only increases the grazing pressure in these areas.

> Once animals are successfully on the lick, you can encourage better paddock utilisation by moving lick troughs to ungrazed areas of your paddocks.

Maintain records of supplement fed out as well as numbers and descriptions of cattle fed to ensure most effective use of supplement dollars.

For more information contact Byrony Daniels from the Department of Agriculture and Fisheries on 0427 746 434.



TEBULEX

**Check out** genetics.mla.com.au

MLA's new genetics hub contains resources, including a step-by-step video, on shopping for a high-performing bull.

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# It pays to be vigilant with any weedy grass Put a stop to Coolatai grass

COOLATAI grass (Hyparrhenia hirta) is a grass generally limited to the south-east corner of Queensland and northern NSW.

Highly invasive of grassland, woodland and pasture, Coolatai grass is a drought, fire and herbicide tolerant tussock grass native to Africa.

Coolati grass is one of the few perennial grasses capable of invading undisturbed natural ecosystems and is a major threat to natural biodiversity in stock routes, nature reserves and national parks.

It is also a major threat to grazing productivity due to its low levels of protein and digestibility.

Coolatai grass is named after Coolatai Station in northern NSW where it was extensively planted in the late 1800s and from there has spread mainly along roadsides to other areas.

tussock grasses it is palatable only when green and short.

Coolati grass rapidly goes competitive advantage to nutrient value to stock.

last plant to be selected by stock and therefore has a ered a significant area.



Like many introduced Coolati grass is one of the few perennial grasses capable of invading undisturbed natural ecosystems and is a major threat to natural biodiversity in stock routes, nature reserves and national parks.

to seed losing much of its more palatable grass species. It can easily be disguised In a paddock of native or amongst other native and sown pasture it is often the weedy grasses, often not being noticed until it has cov-

grass growing to 1 m high in rough surface. a distinct tussock.

It is wiry with most leaves growing from the bottom third of the plant. The leaves are 2-30cm long and 1-2mm es large quantities of small good summer rainfall.

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Seed-head branches are 4-6cm long with prominent light-coloured awns.

This grass species produc-

Coolatai is a perennial wide. The leaves have a seed that spread easily and are viable for a number of years.

> It can go to seed at almost any time of the year, but its main seeding period is after

As with most weedy grasses, prevention is better than trying to eradicate at a later date.

Generally, this grass is spread along roadsides by slashing, and seed attached to vehicles.

It will generally be seen first at gateways and along tracks before moving into grazing paddocks.

As with most weedy grasses, prevention is better than trying to eradicate at a later date.

It pays to be vigilant with any of the weedy grasses and become familiar with your most common preferable grass species so new incursions of weedy grasses can be identified and treated early.

For more information contact Damien O'Sullivan on (07) 4182 1817.

# Fit-to-load guide contains vital information

MEAT & Livestock Australia's 'Is the animal fit to load?' guide has recently been revised (May 2019).

When transporting livestock, it is essential they are an animal is fit to be loaded managed in a way that limits for transport by road or rail. I Checklists to assess stress and minimises risks It includes new content to to animal welfare. Livestock operators must understand their roles and responsibili-

ties when it comes to transporting livestock.

The updated guide to helps producers, agents, buyers and transporters decide if ensure best practice animal welfare when preparing, loading and delivering cattle,

edition contains additional information on:

- Roles and responsibilities for consignors and
- transporters
- whether an animal is fit to load
- Managing effluent Loading densities

sheep and goats. The 2019 Transporting bobby calves ■ Using a firearm or captive bolt for euthanasia

> The new guide has been endorsed by all red meat peak industry councils, Animal Health Australia, Dairy Australia, and other peak industry bodies throughout the value chain. This includes the

Australian Livestock and Rural Transporters Association, the Australian Livestock & Property Agents Association, and the Australian Livestock Markets' Association.

MLA adoption manager northern beef, Ted Parish, recorded a webinar with Oueensland cattle producer Russell Lethbridge where

they talked through the new guide and in particular what had changed, and what it meant for producers, consignors and transporters.

To access the webinar visit youtube.com/FutureBeefAu and search for fit to load.

To download the guide or to order a hard copy, visit mla.com.au/isitfittoload.

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# Stocking rates in review

Fine-tuning their stocking rates and better managing nutrition levels of their Merino flock have proven invaluable to Peter and Elizabeth Clark.

AVING an accurate understanding of your optimum stocking rate and nutrition levels is the key driver of Merino flock longevity and productivity.

That's according to Peter and Elizabeth Clark, who together operate the 12,000 hectare property, Leander, north of Longreach, where they typically run a flock of between 2800-3000 self-replacing Merino ewes and some wethers.

Over the past 40 years, the Clarks have discovered the benefits of fine-tuning their stocking rate and better managing the nutrition levels of their sheep by spelling country when they can and managing total grazing pressure (TGP) with exclusion fencing.

"For us, it was a lot of trial and error to work out the best stocking rate for different paddocks in different seasons," Mr Clark said.

"In the 80s, we ran too many sheep and were only achieving low marking rates.

"When we started to tweak the stocking rate, and bring it down in those underperforming paddocks, we started to increase our marking rates.

"We also itemised wool clip records across the different paddocks and adjusted our stocking rates accordingly.

"Sure enough, over time we were able to increase the wool cut on an individual sheep basis and drive our marking rates up by about 10 per cent."

Pest control is another key element to boosting the nutritional performance of your paddocks, and the Clarks found a move to exclusion fencing in 2015 was an effective method to manage TGP.

"The quality and mix of pastures have improved dramatically, and we're seeing grasses we've never had before. Essentially, until we started managing for TGP on our property, we were inadvertently overstocking," Mr Clark said.

"When TGP is managed, we can effectively spell paddocks, run more sheep and mark more lambs."

Before the exclusion fence, the Clarks were only running very low numbers on desert country and reaching a lambing rate of only 80 per cent.

"With the fence, we're now achieving a lambing rate of 100 per cent and above, and we can adjust our stocking rates according to the land's needs - letting it rest when it needs to and boosting the long-term nutritional benefits of our pastures," Mr Clark said.

Nutrition and land condition are factors the Clarks keep a close eye on, opting to destock in the tough years to avoid degradation of their soils.

"Dry ewes are the first to go, followed by older ewes," Mr Clark said.



Peter and Elizabeth Clark operate the 12,000 hectare property, Leander, north of Longreach, where they typically run a flock of between 2800-3000 sheep.

The quality and mix of pastures have improved dramatically, and we're seeing grasses we've never had before. Essentially, until we started managing total grazing pressure, we were inadvertently overstocking.

**Peter Clark** 

Sorting ewes on a wet/ dry basis is something that has also allowed the Clarks to dramatically boost the productivity of their flock. "Each year, by wet/dry sorting our ewes at marking, we are able to eliminate all sheep that have any problems with producing a lamb," Mr Clark said. "Over the years, we have managed to build up a productive flock that we can sort efficiently at marking."

### MANAGING MITCHELL GRASS AND STOCKING RATES AFTER DROUGHT

Rain was sporadic across Queensland in March and April, and while many areas have recovered, there are as many still drought affected. Strategically managing Mitchell grass and stocking rates when rain arrives is a key part of recovering from drought. Department of Agriculture and Fisheries (DAF) principal scientist Dr David Phelps, who is based at Longreach, says grass recovery is one of the most common concerns producers raise with him.

"For producers who have had good rain and are looking to restock, it's important to try to spell Mitchell grass for a minimum of six weeks before restocking," Dr Phelps said.

"Agistment is expensive and the temptation is to move stock straight back onto Mitchell grass, but long-term pasture levels will greatly benefit from spelling."

For those producers who have unfortunately missed relief rain, accurately estimating stocking rates and available feed is critical to protecting your pastures over the longer term.

"Ideally, Mitchell grass is never grazed to a tussock length of below 15 centimetres, as it is most responsive to rain when it has that length to it," Dr Phelps said.

While the need to rest paddocks after rain can lead to tough decisions around agistment and destocking, spelling allows grasses to recover faster and with less moisture.

For more information on nutrition, stocking rates and pasture management, visit leadingsheep.com.au.

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